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BACKGROUND PAPER

Activities of the organizations of the United Nations system in the field of freshwater resources

Compiled by the
Administrative Committee on Coordination
Subcommittee on Water Resources

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United Nations Secretariat[1]

Water resources activities are currently carried out by two divisions of the United Nations Secretariat: the Division for Sustainable Development and the Division for Economic and Social Development and Natural Resources Management.

A. Division for Sustainable Development

The Division for Sustainable Development (DSD) provides substantive support to intergovernmental and interagency bodies on issues related to sustainable development and management of water resources. These bodies include the General Assembly, the Economic and Social Council, the Commission on Sustainable Development, the Committee on Natural Resources and the ACC Subcommittee on Water Resources.

(a) General Assembly and ECOSOC

The Division has prepared several reports for consideration by both the General Assembly and the Economic and Social Council over years, including on the review of progress in implementation of the International Drinking Water Supply and Sanitation Decade. The most recent of such documents is the Report of the Secretary-General (A/50/213-E/1995/87) entitled, "Progress made in providing water supply and sanitation for all during the first half of the 1990s". The report shows that despite a significant expansion in the provision of drinking-water and sanitation during the first half of the 1990s -- during which an additional 800 million people were provided with clean water -- over 1 billion people were estimated to be without access to safe water in 1994 and almost 3 billion were without adequate sanitation in developing countries. The report concludes that the challenge of providing full water supply and sanitation coverage to the urban areas of developing countries remains daunting, especially because of high rates of population growth and urbanization..

(b) Commission on Sustainable Development

DSD is responsible not only for the organization and servicing of water-related agenda items of the Commission but also for the preparation of analytical and policy documents in this field. Recent examples of this output include the Comprehensive Assessment of the Freshwater Resources of the World and the five-year review of progress in implementation of chapter 18 of Agenda 21.

The Comprehensive Assessment of the Freshwater Resources of the World (document E/CN.17/1997/9) was prepared by DSD together with members of a Steering Committee composed of DDSMS, UNDP, UNEP, UNESCO, FAO, WHO, WMO and the World Bank, on behalf of the ACC Subcommittee on Water Resources, in cooperation with the Stockholm Environment Institute and with the support of the Governments of Canada, Denmark, the Netherlands, Norway and Sweden. The Assessment was considered by the Commission on Sustainable Development at its fifth session, in April 1997, and by the Nineteenth Special Session of the General Assembly, in June 1997.

The review of progress in implementation of chapter 18 of Agenda 21 (document E/CN.17/1997/2/Add.17) was compiled by DSD on the basis of inputs provided by agencies members of the ACC Subcommittee on Water Resources. The review was also submitted to the fifth session of the CSD and Special Session of the General Assembly in June 1997. The review notes, inter alia, that impediments to the implementation of chapter 18 exist largely because of the fragmentation of responsibilities and mandates for water resource management and the somewhat inferior status of water-related activities in relation to other sectoral activities. The review also states that the practical realities facing many governments in developing countries, some with extremely limited water resource

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[1] This section describes activities of constituents of the Economic and Social Departments. They are referred to by the previous names.

the practical realities facing many governments in developing countries, some with extremely limited water resource bases and most with inadequate institutional arrangements, pose several constraints for the effective introduction of integrated water resources management. With regard to water supply and sanitation, the review notes that one of the main constraints remains the dispersed nature of the responsibility for the protection of health and the environment, and inadequate policies and mechanisms for efficient and equitable allocation of water resources among competing users, particularly in circumstances where water is relatively scarce.

(c) Committee on Natural Resources.

DSD is also jointly-responsible for the organization and servicing of the water components of the Committee and for the preparation of analytical and policy documents in this field. Recent examples of this output include the Reports of the Secretary-General on The state of the freshwater resources of the world (document E/C.7/1996/4) and on Preparation for implementation of plans for averting the freshwater crisis (document E/C.7/1996/5) for the third session of the Committee, which was held in New York in May 1996.

(d) ACC Subcommittee on Water Resources.

The ACC Subcommittee on Water Resources is composed of all organizations of the United Nations system involved in the field of freshwater resources. The Division for Sustainable Development serves as the Secretariat for the Subcommittee and provides substantive servicing of its annual sessions. The Subcommittee reports to the Administrative Committee on Coordination (ACC) through the Inter-Agency Committee on Sustainable Development (IACSD). The Subcommittee is the task manager for monitoring and reviewing of progress in implementation of chapter 18 of Agenda 21. The Division, as the Secretariat of the Subcommittee, is responsible for consolidation of inputs provided by other organizations and for the preparation of final reports of the Secretary-General. The Division for Sustainable Development is also responsible for the preparation of the annual reports of the Subcommittee and some of the substantive reports submitted for consideration during its annual sessions.

B Division for Economic and Social Development and Natural Resources Management

In the area of integrated water resources development and management, DESDNRM was given the lead role within the ACC Sub-committee on Water Resources to develop strategies within the context of the implementation of Agenda 21. Initiatives are designed to combine research and operational activities to inform water policies and strategies at the country and river basin levels. In its operational activities, DESDNRM has developed methodologies based on an iterative approach to policy formulation and resource planning paying particular attention to the failures as well as the successes of various water-related projects throughout the world. This approach is currently being tested through ongoing technical co-operation activities in a number of developing countries, including Bolivia, Burkina Faso, Cambodia, China, Ghana, Jordan, Morocco, Namibia, Senegal and Yemen. In its water sector assessments, diagnostic studies and national or river-basin programmes related to water resources planning and management, DESDNRM is advocating an integrated approach to water use and equitable allocation of water to various users and the consultation and participation of users/communities in the decision-making process and financing of infrastructure. The approach has been incorporated into UNDP country programmes and in capacity building for water resources management at national, regional and community levels in the context of national development plans and priorities.

Water resource management diagnostic studies that are working toward this principle of separation of functions and the establishment of an independent and neutral water resource body are currently being undertaken in Cambodia, China, Ghana and Yemen.

With regard to water resources assessment, DESDNRM has recently been providing substantive support to the GEF implementing agencies in formulating the programmes of integrated management for Lake Chad, the

Okavango River basin and the Niger River basin. These programmes address issues related to protection of water resources, water quality and aquatic ecosystems in ways that attempt to avoid the establishment of cumbersome and unsustainable river basin organisations or commissions. More imaginative approaches to the adaptation of and networking between national water resource organisations are being tried out to reduce overhead costs and avoid domination by the more powerful riparian states.

In the drinking water supply and sanitation subsector, DESDNRM has been involved in the activities related to post-conflict rehabilitation of water supply and sanitation facilities in urban and rural areas of conflict-affected countries. The programmes in this field are being implemented in Iraq and Yemen. The emphasis is being placed not only on the reconstruction of the damaged facilities, but also on capacity building and community mobilisation to maintain and manage the supply facilities to ensure their sustainability and communities self reliance. Much of the experience in both urban and rural areas has been fed into the water components of the Secretary General's Special Initiative for Africa where DESDNRM is actively co-operating with FAO, UNDP, UNICEF, the World Bank and other UN organisations to promote sustainable use of limited resources in Africa's diverse cultural and environmental settings.

United Nations Regional Commissions

Economic Commission for Africa (ECA)

The major activities of ECA are summarized below:

(A) Major Meetings

- Ad-hoc Experts Group Meeting on Guidelines for Natural Resources and Energy Development in Africa with emphasis on privatization and regulation (1997)
- Follow-up for the implementation of the strategy and plan of action to the joint ECA/WMO Conference on Water Resources: Policy and Assessment (20-25 March 1995, Addis Ababa, Ethiopia)
- Annual Inter-Agency Group meetings for water in Africa for coordination and harmonization of activities in the sector

(B) Policy and Strategy Formulation

This is an ongoing activity. The objective is to promote strategy and action plan for water resources in Africa. The expected output is the implementation of the action plan.

(C) Advisory Services

This is an ongoing activity. The objective is to provide technical assistance to Member States.

(D) Recent Publications

- Annual information bulletin on water resources activities in Africa (MAJI)
- Problems and Prospects for Large-Scale Irrigation Development in Africa (1996)
- Directory of National, Subregional and Regional Water Resources Institutions in African countries with emphasis on specific capabilities for TCDC. (1997)
- Promotion of subregional and regional cooperation and providing support to transboundary river basin organizations and other socio-economic groupings (1997)

Economic and Social Commission for Asia and the Pacific (ESCAP)

In the implementation of Agenda 21 in the Asian and Pacific region, ESCAP has been focussing its efforts on assisting the countries of the region in the formulation and implementation of plans and programmes in the following major areas of integrated water resources development and management in their national economic and social

development activities: water resources assessment; preparation of guidelines on sustainable development of water resources; establishment of pricing policies and structures for water supply; promotion of private sector's participation and investment in water resources projects; and promotion of women's role and participation in water supply and sanitation. ESCAP formulates regional projects, conducts studies, organizes expert group meetings, workshop and seminars, disseminates information and provides technical advisory services. ESCAP has organized an expert group meeting on the implications of Agenda 21 for integrated water resources management in Asia and the Pacific. It has also organized expert group meetings and seminars on guidelines for the sustainable development of water resources , on pricing policies, and on the preparation of a guidebook on the promotion of investment for water supply and sanitation projects. For the assessment of water resources in the region, the "Guidebook to Water Resources, Use and Management in Asia and the Pacific, covering fifty countries/areas of the region was produced (1995). Another publication "Assessment of Water Resources and Demand by User Sectors in Myanmar" was produced (1995) and a similar study on China is under production.

ESCAP has recently provided advisory services on various aspects of water resources development and management and also on water-related natural disaster reduction to Brunei Darussalam, Cambodia, Islamic Republic of Iran, Kyrgyzstan, Lao PDR, Mongolia, the Philippines, the Republic of Korea and Uzbekistan. In addition, ESCAP continued to disseminate advanced technology and knowhow on water resources development and management through its various publications. These included the quarterly issues of the Water Resources Journal and the semi-annual issues of Confluence. Other recent publications include "Protection of Water Resources, Water Quality and Aquatic Ecosystems in Asia and the Pacific" (1995), "Water Pricing Policies and Structures and Investment Promotion in the Water Sector in Asia and the Pacific" (1996), "Overview of Water Pricing Policies and Structures in the ESCAP Region" (1996), "Guidelines for the Establishment of Irrigation Water Pricing Policies and Structures" (1996), "Guidelines for Establishment of Pricing Policies and Structures for Urban and Rural Water Supply" (1997), "Guidebook on Private Sector Participation in Water Supply and Sanitation (1997).

ESCAP continues the promotion of technical cooperation among developing countries (TCDC) in the region. ESCAP services the semi-annual meetings of the Sub-Committee for Water of the Regional Interagency Committee for Asia and the Pacific (RICAP) in Bangkok to coordinate their water-related activities. ESCAP has continued its traditional substantive support to the work of the Mekong River Commission. It has also continued its work on natural disaster reduction, particularly on flood control and management in the region. A detailed study on the natural hazards of the region was undertaken and a publication on "Natural Hazards and Natural Disaster Reduction in Asia and the Pacific" was prepared (1995). Appropriate land-use planning and practices was an area where efforts were recently directed to reduce damage due to water-related disasters and to enhance productivity of land through watershed management. A workshop was organized and a guidelines and manual on the appropriate practices for land use is under preparation (1997). ESCAP continues to provide substantive support to the work of the Typhoon Committee and the Panel on Tropical Cyclones. ESCAP also organizes the IDNDR Day every October with the participation of the UN agencies and concerned government departments in Bangkok.

Economic Commission for Europe (ECE)

ECE has adopted and published (Water Series No. 3, ECE/CEP/11) three new soft-law instruments on monitoring and assessing transboundary waters, on specific measures to protect groundwaters, and on licensing waste-water discharges. It started with the implementation of these guidelines through pilot projects in transboundary river basins in eastern Europe.

The eradication of water-related diseases gains particular importance in the region as projections show that by the year 2000 some 110 million Europeans will still not have access to safe drinking water. ECE is preparing jointly with WHO/EURO an international instrument on the prevention, control and reduction of water-related diseases which will be presented to the 1999 London Ministerial Conference on Environment and Health.

ECE together with its member States has organized a number of workshops and training courses on such issues as

sustainable water supply and management in cities (Turkey, October 1996); the ECE environmental conventions on water, industrial accidents and environmental impact assessment (Kazakstan, December 1996), and information for decision making and planning in water management (Poland, Mai 1997). Preparations are being made for the International Conference on Management of Transboundary Waters in Europe (Poland, 22-25 September 1997), a joint ECE/UNESCO workshop on protection against groundwater depletion in large catchment areas (Hungary, 6-9 October 1997), and the International Conference on Management of Transboundary Lakes (Estonia, spring 1998).

Preparations were made to convene the first meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes in Helsinki from 2-4 July 1997. This convention entered into force on 6 October 1996 and has been ratified so far by 20 countries and the European Community. Work under the Convention focuses on five priorities: integrated management of water and related ecosystems; land-based pollution control; human health and water supply; promotion of joint bodies for transboundary river basins; and assistance to countries in transition. One of the fundamental prerequisites for achieving these objectives is broad public participation in decision-making, including participation of NGOs. Under the Convention, the pan-European water partnership will become a forum to foster dialogue between representatives of national and local Governments, representatives of joint bodies established to protect transboundary inland waters and joint bodies established to protect the marine environment, representatives of business and industry, representatives of NGOs, the scientific community and all those who are involved in water management.

Economic Commission for Latin America and the Caribbean (ECLAC)

ECLAC continues to do what it has been doing for the last few years: on the one hand, it promotes, through discussion, advice and meetings, the adoption of the river basin as a major component in the institutional system for water management; on the other, it seeks to encourage private participation in water management, especially in drinking water supply and sanitation services. In this regard, ECLAC is planning to hold an expert meeting on river basin management, in October 1997, and will continue to provide advice to countries wishing to develop river basin institutions.

On private participation, ECLAC has recently published three documents, one in two parts, on alternatives for private participation, on regulation and on national policies towards and experience in private participation. The Commission also provides advice in this area to the countries of the region. In addition, ECLAC provides advice on water laws as many of the countries of the region are in the process of reforming their water legislation in one way or another.

Economic and Social Commission for Western Asia (ESCWA)

ESCWA's water programme objectives have been directed towards supporting its member states in their efforts to achieve efficient development and management of their scarce water resources in a region characterized by arid and extreme arid climate, high population growth, and fast changing socio-economic development. It has been recognized that the region priorities lays on the promotion and strengthening of integrated management of water resources through: reliable water assessment by modern techniques, formulation and implementation of effective legal and regulatory framework, establishment of regional training network to enhance technical capability, demand management with focus on impact of water pricing policy and promotion of regional cooperation for management of shared water sources. Hence, the various programme elements have focused on the enhancement of technical know-how in order to achieve integrated development and management of water resources through information dissemination and exchange, conducting special studies, convening of expert group meetings, training courses and workshops, and introduction of appropriate technology for water resources assessment, development and utilization. Then, particular attention has been given to the study of groundwater, including shared sub-regional water sources as well as non-conventional water sources to meet rising demand, especially in the domestic and irrigation sectors.

As part of ESCWA programme activities, expert group meetings and training workshops were convened during the period of 1995-1996 in cooperation with concerned national water institutions and UN agencies concerning the Implications of Agenda 21 for Integrated Water Management; the Investigation of Shared Basalt Aquifers in Jordan and the

Syrian Arab Republic; and on Water Legislation. ESCWA, in collaboration with the Royal Jordanian Geographic Centre, organized a training course on The Use of Remote Sensing Data and GIS Techniques in Hydrology and Hydrogeology. It also organized a training course on Frame Water Management in collaboration with the Ministry of Public Works and Water Resources of Egypt.

A regional study on "Groundwater quality control in the ESCWA region" identifying causes of water quality deterioration was conducted in 1996. The study also addressed requirements for implementing measures needed for conservation of water quality in exploited and exploitable aquifers on . These measures include water quality-quantity integration, water quality standards and guidelines and protection of drinking supplies from contamination.

In light of expanding metropolitan cities, a study entitled " Water Pollution in Selected Urban Areas in the ESCWA Region" with focus on environmental impact aspect will be issued soon. The publication will include analyses of water supply sources, as well as water pollution problems in three main cities within the ESCWA region, namely Damascus, Jeddah, and Gaza. Recommendations and suggestions will be directed towards the improvement of water quality and measures to combat pollution.

As part of a demand management strategy, a study is being prepared to evaluate the impact of water pricing policy on water demand. The study will involve assessment of water demand in the domestic, industrial and agricultural sectors, estimated cost of water production from different water sources, and current water tariffs being practised in the region. In addition, the concept of privatization and its current trends in selected countries will be reviewed and documented. The outcome of the study is expected to provide information on the perception of water pricing mechanism as demand management tools to achieve optimal development and utilization of limited water resources.

Also, a study has been completed on the shared Basalt aquifer between Syria and Jordan. The main outcome of this study, is to introduce modalities of regional cooperation in selected shared water resources among concerned countries. The study also emphasis the application of new technique of remote sensing, isotope hydrology...etc to improve the state of the knowledge which have resulted in production of 18 thematic regional hydrological and hydrogeological maps.

ESCWA continues its role in promoting regional and subregional cooperation in water resources development and management among its member states. A regional project entitled "Assessment of water resources in the ESCWA region using remote sensing techniques" was executed during the biennium 1994/1995 and completed early in 1996. The project's aim was the improvement of the state of knowledge of water resources in the ESCWA region through the application of modern Remote Sensing and Geographical Information System (GIS) techniques. The project outcome consisted of a technical publication addressing regional assessment of surface and groundwater sources, as well as the formulation of water strategies, with emphasis on shared water resources, using the interpretation and analysis of hydrological, hydrogeological and remotely sensed data.

In order to assist the member States in their national efforts to develop and manage their water resources, ESCWA provides technical advisory services in response to their requests. These services include advisory missions on an individual or joint, multi-disciplinary basis, and the recruitment of short-term consultants to address specific water resource issues or problems. Advisory services also include contributions to national and regional training activities.

United Nations Funds and Programmes

International Research and Training Institute for the Advancement of Women (INSTRAW)

INSTRAW's programme on women, environment and sustainable development is one of the four main pillars of its research and training programmes. The programme consists of activities in the areas of policy design and coordination, research, training/capacity building and information. Lack of education and training, participation in planning programming and projects, financial means, and involvement in technology choice are among the main constraints confronting women in achieving full integration and participation in development.

In the biennium 1994-1995 INSTRAW up-dated its training package on "Women, Water Supply and Sanitation" with an additional modular unit on "Women and Waste Management" as part of its poverty alleviation efforts, and six national training seminars on women, water supply and sanitation were convened from 1992 to 1995 in cooperation with national counterparts, other UN agencies, non-governmental organizations, and academic and training institutes.

Following the recommendations of Agenda 21 and the multi-year themes of the Commission of Sustainable Development, INSTRAW continued its research related to development, management and water resources reuse in an integrated manner recognizing that women are not a new dimension in the sector, although their water-related work and its economic value has not been appreciated. The focus of this research is on the roles of women in both urban and rural areas of developing countries which has resulted in the preparation of multi-media modular training packages, including one on Women, Environmental Management and Sustainable Development produced in cooperation with the International Training Centre of ILO. This was prepared in response to the UNCED, the Convention on Desertification, the Convention on Climate Change, the World Summit on Social Development, and the Fourth World Conference on Women.

INSTRAW has also included in its work the recommendations of the International Conference on Water and the Environment, Dublin, Ireland, January 1992, which included women's issues as one of its four main principles for the 21st century. During the NGO Forum at the Fourth World Conference on Women, INSTRAW convened a panel on women, water and environmental sanitation in cooperation with UNICEF and SIDA (Sweden). At the special events organized during the Conference, INSTRAW convened a panel on women and natural resources management in cooperation with the UN Secretariat and the Swedish Environment Institute(SEI). Also, in cooperation with the ILO/Turin Centre, a sub-regional training seminar on Women, Environmental Management and Sustainable Development for Central and former Eastern European countries was convened in September 1996. INSTRAW substantively contributed to the background report on "Gender and Water" prepared by SEI as a part of the Comprehensive Assessment of the Freshwater Resources of the World.

INSTRAW has developed networking to support its operations at the national, regional and international level, and to strengthen its role as the major advocate for women, water supply and sanitation within the United Nations system. It has been involved in all aspects of inter-agency and policy coordination since 1982, and has participated in the activities of the Collaborative Council for Water supply and Sanitation.

United Nations Centre for Human Settlements (HABITAT)

The UNCHS implements global projects addressing poverty alleviation, protection and promotion of human health, development, management and use of water resources and the specific water related problems in Africa. These projects include "Integrated management of Water Resources and Environmental Infrastructure", "Pilot Evaluation of small-scale Composting and Digestion", and "Community based Environmental Management Information Systems (CEMIS)". In addition, it supports inter-agency collaboration and coordination through the ACC Sub-committee on Water Resources, the Steering Committee, the Collaborative Council and other mechanisms.

With regard to poverty alleviation, the thrust is towards capacity building at national and local authorities' levels and in the community with a particular focus on the urban poor. Action to improve to adequate and accessible water and sanitation at affordable prices is an important element of these efforts with the aim of making time available for more productive activities rather than the fetching of water, e.g. household management, skills training, food production. Training is also encouraged in appropriate technologies such as composting and rain-water harvesting.

Health considerations include research into the impact of inadequate infrastructure such as water, sanitation drainage and waste management, while integrated water resources management considerations include for capacity and awareness building at all national administrative levels and within the private sector. The emphasis is on research, development of management and implementation tools, pilot demonstration projects, and the dissemination of best practices. A major thrust is on the issues of urban water resources management, the problems related to which were underscored by a major international water conference on management of water resources for large cities and towns, Beijing, China, March 1996, and which were a focus of World Water Day 1996.

In Africa, UNCHS is currently implementing programmes in Kenya, Zambia, Ghana and Tanzania, and in response to the UN system-wide Initiative for Africa, there are plans to extend peri-urban water activities to and/or in Kenya, South Africa, Nigeria, Mozambique, Uganda, Ethiopia, Senegal and Mali.

United Nations Children's Fund (UNICEF)

UNICEF's programme has the overall objective of supporting government and communities in their efforts to increase water supply and sanitation service coverage, with the focus on the health and welfare of children and mothers and targeting areas affected by water-related diseases for maximum health impact. Its activities are directed towards capacity building in communities, governments, NGOs and the private sector with a particular emphasis on women in relation to decision making, planning, management and operation and maintenance of systems.

UNICEF has several relative advantages in the area of water supply and sanitation development including long-standing country level experience, dedicated staff in around 100 countries (by nature, UNICEF operations are at community level and are implemented in close partnership with national authorities), experience in sector advocacy and the development of pilot experience to full scale operations, and a primary environmental care approach aimed at cost-effectiveness and efficiency.

The UNICEF "Strategy in Water and Environmental Sanitation" presents a new programme emphasis which pays greater attention to environmental sanitation, hygiene promotion, behavioural change, and operation and maintenance of systems. Its focus is on utilization and sustainability of systems, greater health impact, and community based water resources management with a focus on vulnerable groups including the urban poor and disadvantaged.

Expansion of service coverage is aimed at through a comprehensive approach including sanitation, hygiene education, environmental health, nutrition, education and community participation, and the application of standardized appropriate technologies. Basic to these approaches is capacity building, institutional capacity building, and monitoring and evaluation for strengthened sector planning and management.

United Nations Development Programme (UNDP)

The UNDP/World Bank Water and Sanitation Programme is an important contribution to sector development within the United Nations system dating from 1978 with three Regional Programmes covering Africa, Asia and Latin America respectively. The Programme's activities are implemented in five regions: South Asia, East Asia and the Pacific, West Africa, East and Southern Africa, and the Andean region. The Programme mission, as it has evolved is the "creation of capacity so that they (*communities and national authorities)* can do it themselves". Its focus is on the poor in rural and marginalized urban areas; however, it has increasingly structured projects to promote investments in the water and sanitation sector by supporting communities and governments in developing their capacity to solve problems, to treat water as an economic and a social good, and to involve all of the stakeholders in the selection, operation and maintenance of systems.

Activities are based on three approaches: forging ahead on the foundation of applying experience, demand-based approaches and participatory development. Countries where activities are being implemented and where scope exists for

developing cooperative actions with other Steering Committee Members are: Bangladesh, Benin, Bolivia, Burkina Faso, China, Cote d'Ivoire, Ecuador, Eritreia, Ethiopia, Ghana, Guinea, Guinea Bissau, Kenya, Lesotho, India, Indonesia, Lao People's Democratic Republic, Malawi, Mali, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Tanzania, Uganda, Vietnam, and Zimbabwe.

Building on over thirty years of experience and considering the recommendations of major international water conferences, (e.g. New Delhi, Delft, Dublin, Noordwijk, Beijing) and in particular Agenda 21, UNDP's mission can be stated as:

> Support to the capacity building process through and with governments and civil society for the management and use of water resources and the aquatic environment in ways that reconcile poverty alleviation and environmental protection.

UNDP technical cooperation programmes are concentrating their efforts on applying capacity building strategies aimed at creating an enabling environment with appropriate policy, legal and regulatory frameworks; institutional development including community participation; human resources development and strengthening of managerial systems; and information networks. These programmes are directly linked to UNDP's four primary goals of poverty elimination, creation of jobs and sustainable livelihoods, advancement of women, and protection and regeneration of the environment.

Along with demonstration projects carried out in communities around the world to promote "learning by doing", UNDP concentrates its capacity building activities in such areas as fostering institutional innovations which are consistent with and help promote sustainable water resources management; training and professional development of staff in demand management methods and planning; increasing local information gathering and dissemination capabilities and increasing capacity to analyze questions of sustainable resources management; assisting in the development of national policy frameworks; preventing international water disputes and facilitating their peaceful resolution; and supporting adoption of integrated management approaches to rivers, lake basins and coastal zones.

In carrying out its capacity building mandate, UNDP is committed to ensuring that a broad range of stakeholders is supported in playing their rightful and necessary role in managing water resources sustainably. New capabilities are needed within governmental water-related agencies, NGOs and the private sector so that they can engage and work effectively with one another; similarly, the capacity of- local and community groups must be enhanced to better deal with governments agencies. Institutions must be built or strengthened at the community level if sound community-based water management is to succeed, and nationally and regionally to protect the full range of aquatic environments.

UNDP believes in forging partnerships with other external support agencies including UN system agencies, development banks, bilateral and non-governmental agencies, which can share common strategies and pool resources and thereby enhance the impact of development cooperation programmes at the country, regional and global levels.

United Nations Environment Programme (UNEP)

The work programme of UNEP's integrated Water Branch promotes global freshwater assessments, and develops tools and guidelines for sustainable management and use of freshwater and coastal resources, with special reference to small island developing states and selected megacities of Latin America, Asia and Africa. It also promotes international cooperation in the management of river basins and coastal areas, with a focus on land-based pollutant sources and activities. Further, it promotes development of regional agreements and actions plans for integrated management of river basins, lakes and groundwater aquifers, and associated coastal zones. This integrated programme is the cooperative endeavour of experts in international environmental law, biodiversity, scientific assessment, freshwater and marine resources and land degradation.

The main issues being addressed by UNEP within its integrated approach include (i) threats to the supply and quality of freshwater and associated coastal area resources, especially from land-based activities; (ii) water supply and demand in the context of increasing scarcity and deteriorating water quality; (iii) needed capacity building in regard to awareness, skills, institutions, policies and legislation directed to water resources; (iv) the need to address information and data gaps in water resource assessment; (v) problems of transboundary water management; (vi) the strategic role of water in relation to poverty, health and food security; and (vii) threats to the health and function of aquatic ecosystems.

The range of issues being addressed by UNEP in the field of freshwater resources is highlighted in its ongoing activities. UNEP's programme on the "Environmentally-Sound Management of Inland Waters (EMINWA) was developed to deal with the multiple functions of freshwater resources, working within the framework of an integrated water system as a whole. This integrated management approach, involving the riparian Governments, facilitates the identification and reconciliation of competing interests with regard to sustainable economic development on the one hand, and environmentally-sound management and use of freshwater resources on the other hand. It incorporates basin-scale diagnostic studies and action programmes for international river and lake basins. UNEP has completed or anticipated EMINWA projects for the Zambezi River, Nile River and Lake Chad basins of Africa, the Mekong River and Erhai Lake basins of southeast Asia, the Aral Sea and Caspian Sea basins of southwestern Asia, and the San Juan River and Lake Titicaca basins of Latin America.

In response to a request from the UN Committee on Natural Resources, UNEP determined the status of implementation of Chapter 18 of Agenda 21 on a regional basis. This was done with international workshops held in Africa, western Asia, Latin America and the Caribbean, Asia and the Pacific, and eastern Europe, and provided considerable insight into the regional freshwater-related priorities of Governments. Further, in cooperation with its International Environment Technology Centre, UNEP conducted a series of regional workshops on convention and non-conventional methods of augmenting freshwater supplies. It resulted in a series of source books outlining appropriate technologies on a regional basis, including Africa, western Asia, Asia and the Pacific (including small island developing states), and Latin America and the Caribbean.

As Chair of the Water Working Group of the UN System-wide Special Initiative on Africa, UNEP is working to coordinate UN agency efforts to achieve specific social, economic and environmental goals in the sustainable use of freshwater resources. In cooperation with other UN agencies in the Water Working Group, UNEP also is working to facilitate implementation of water objectives developed within the context of African socio-economic development for (i) integrated water management and use, (ii) drinking water and sanitation, (iii) water for food security, and (iv) freshwater assessments.

UNEP was selected as Secretariat of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA). Although focused on protection and conservation of coastal waters and the open oceans, most required action plans and remedial programmes will be implemented within freshwater drainage basins, highlighting the fundamental hydrologic linkage between land/freshwater/coastal areas/oceans. As a result, and with the overriding goal of providing an integrated approach to the objectives of the GPA, UNEP consolidated its formerly unique Water Unit and Oceans and Coastal Areas Programme Activity Centre into a single, integrated Water Branch, thereby enabling UNEP to consider sustainable water resources within a single water management continuum. This consolidation also represents a practical application of a unified integration of assessment, diagnosis, planning, management and strategic concerns inherent in these hydrologically-linked water systems.

UNEP's role as an Implementing Agency within the Global Environment Facility (GEF) strengthens its efforts in the preparation of transboundary diagnostic analyses, and regional/global reviews of threats to freshwater, and associated coastal/marine environment. To this end, UNEP has developed projects or proposals within the GEF International Waters Portfolio for projects in many regions of the world, including Latin America, Africa, and Asia and the Pacific. It also is facilitating preparation for a Global International Waters Assessment, to develop a global overview, based on regional assessments, of freshwater and marine issues and problems and their underlying causes, as a means of providing the GEF

with a tool for assessing and assigning priorities to its proposals and projects.

United Nations High Commissioner for Refugees (UNHCR)

UNHCR's Water Sector activities are aimed to foster a preventive health approach in favour of beneficiaries of refugee assistance programmes throughout the world. They are an important component of UNHCR's actions in favour of refugees during emergency situations, in longer-term refugee camp situations (which may also include refugee rural settlements) and during refugee repatriation programmes. They are implemented by non-governmental organizations working in partnership with UNHCR and in close cooperation with concerned Government authorities, either in refugee hosting countries or in the country of origin of refugees returning home.

The approach and modalities for the identification of adequate water resources to satisfy the need of refugees or returnees is normally dictated by the number of beneficiaries and their location. Additional efforts are always made to include "local communities" (non-refugee or non-returnees) living in the vicinity of refugee or returnee sites as a part of the beneficiaries of UNHCR's water sector projects. The development of water supply facilities (to meet human demand and, sometimes, agricultural requirements) is normally carried out in such way that the level of technology and the "long-term" operation and maintenance requirements of the resulting systems are compatible with the capacity of the beneficiary communities' to ensure their sustainability.

Fostering the sustainability of water infrastructure benefitting refugee or returnee populations has been an important component of UNHCR's programmes during 1997. This has implied the introduction of additional project components within the programmes to ensure the full involvement of beneficiaries in the required operation and maintenance activities. A more careful choice of technology, the development of adequate mechanisms to motivate community participation and the introduction of cost-recovery mechanisms have been included as an integral part of the planning and implementation of water sector projects. A first attempt to attain this objective has been an increased involvement of community development expertise in these efforts. As a complement to this, and in view of the limited time-frame of UNHCR's programmes, UNHCR will, in the near future, try to identify the most adequate arrangements to obtain support from concerned Government authorities, donors and international agencies for the inclusion of these communities as beneficiaries of relevant, long-term development projects with clear sustainability goals.

United Nations University (UNU)

The United Nations University's International Network on Water, Environment and Health (UNU/INWEH) consists of scientists, scholars and professional practitioners engaged in capacity-building in support of sustainable water resource development in the developing world. The particular focus of the UNU/INWEH "consortium" is on the integrated, holistic management of aquatic ecosystems (river basins, lakes and reservoirs, wetlands, groundwater) for sustained environmental and human health benefits. Activities cover the full spectrum of capacity-building needs: human resources development; environmental monitoring and assessment; policy and regulatory development; and private sector engagement. UNU/INWEH operates within the framework of Agenda 21 of the United Nations Conference on Environment and Development with a particular emphasis on the interconnectedness between water, environment and health. It is one of several Research and Training Programs of the UNU.

The work of UNU/INWEH is carried out by teams of professionals normally "seconded" to the Network from universities, colleges, river basin authorities, governments, non-governmental organizations and private sector water firms in Canada and other parts of the world. This unique networking approach enables UNU/INWEH to benefit from both the expertise and facilities at a wide range of training and development institutions without having to establish a separate "campus". A small Headquarters Unit, located at McMaster University, Hamilton, Canada, provides leadership and coordination for the program. Supporting facilities are located with the National Water Research Institute, a nearby water research centre of Environment Canada.

The UNU/INWEH program consists of four priority elements. The first is the implementation of capacity-building projects in the developing world, funded by national and international development agencies and governments. These projects generally focus on integrative, basin-scale activities in the areas of aquatic ecosystem assessment and protection, water and wastewater treatment and water-related human health impacts. The second component is targeted training through a coordinated cross-disciplinary curriculum covering all aspects of river basin ecosystem management. "Train-the-trainer" programs will be given in Canada and in key regional centres, with follow-up support for South/South training in home countries. The third element is information dissemination and technology diffusion through computer-based communications, both to trainees and stakeholders in the water sector. Lastly, UNU/INWEH supports the United Nations system through the provision and evaluation of scientific information for global water management and policy development. The focus overall is on practical problem solving in the developing regions of the world.

UNU/INWEH's limited core financial resources are generally invested in the early identification and development stages of projects and training programs, in conjunction with Network partner institutions who provide in-kind salary and infrastructure support. Program implementation is funded by third parties; in the case of projects, by donor funding agencies, and in the case of training programs, by participants and their sponsors. Activities are thus usually undertaken on a full cost recovery basis.

UNU/INWEH commenced operations in November 1996. Core funding and in-kind services, totalling CDN $5.25 million, have been generously provided by the Government of Canada and the International Development Research Centre (IDRC) of Canada for the first 4 years of operation of UNU/INWEH. Sustainable core funding will be sought through the creation of a permanent endowment fund; an international fundraising campaign will commence in 1997. By the year 2001, it is expected that UNU/INWEH will have reached a programme delivery level of some CDN $10 million per year.

United Nations Specialized Agencies

Food and Agriculture Organization of the United Nations (FAO)

(a) Global Water Partnership Associated Programmes of the Irrigation and Drainage Window

The objective of the Global Water Partnership (GWP) is to support integrated water resources management programmes by collaboration, at their request, with governments and existing networks and by new collaborative arrangements and to help match the needs to available resources. The GWP, at its Copenhagen TAC meeting, adopted the "comb structure" framework to integrate sectorial windows, such as water supply and sanitation, irrigation and drainage, etc. under the umbrella of the broader principles of integrated water resources management (IWRM). The following guidelines have been proposed for the associated programmes: (a) the overall guiding objective should be the strengthening of the IWRM perspective, (b) activities of the associated programmes reflect a clear and operational endorsement of the Dublin-Rio principles, (c) scope and coverage of the activities of the associated programmes make significant normative contribution within a window, (d) associated programmes can benefit from the partnership umbrella to raising financial support and developing their activities and (e) the associated programmes subject themselves to review by the TAC of the GWP.

It is evident from the above that the associated programmes are expected to make two distinct contributions; i.e. contribution that would further the objectives of the sub-sector that the "window" represents, and contribution to strengthen the IWRM principles as guided by the Dublin-Rio principles. The TAC, at its meeting held in Windhoek, in November 1996, identified three members of the partnership, namely, IIMI, IPTRID and FAO (WASAD) as potential key associated programmes in the I&D window. In an informal meeting of the GWP secretariat with the representatives of IPTRID and FAO (WASAD) held in Rome, in February 1997, the need for a brief paper on the *modus operandi* of the three associated programmes and generation of synergy as a result of such a collaborative action within the framework of the GWP window was identified.

(b) The associated programmes of the I&D Window

The overall objectives and goals of the three associated programmes, IPTRD, IIMI and WASAD are common, as they all are designed to increase agricultural production on a sustainable basis, while protecting the quality of the ecosystem. However, the specific focus of these three associated programmes differ from one another. For example IPTRID's research programmes are designed to promote a wide range of measures that will improve crop output per unit of water and at the same time, protect quality of the ecosystems within the irrigation schemes. However, the specific mandate of IPTRID is to promote irrigation and research in and by developing countries;

IIMI's mission is to improve food security and the lives of poor people by fostering sustainable increases in the productivity of water used in agriculture through better management of irrigation and water basin systems. IIMI's work contributes directly and significantly to the goal of the renewed CGIAR, i.e. to conduct research that will help free the deprived and disadvantaged from the grip of extreme poverty and hunger. The research contributes specifically to three key areas: increasing productivity; protecting the environment; improving policies; and strengthening national research programmes.

The overall objective of WASAD is to assist the Member Nations to formulate and implement national action programmes to promote water management for sustainable agricultural development with particular focus on food security. The specific objectives of WASAD, at country level, are to: (a) review the national water sector in general, but the irrigation sub-sector in particular; (b) identify issues and opportunities for development in the context of policies/strategies, river basin master planning; adaptation of technologies, management issues, environmental sustainability; and national capacity building; (c) formulate National Action Programmes to address the issues and realize the opportunities, and (d) assist Member Nations to implement the WASAD national action programmes.

Commitment to the objectives of integrated water resources management, as guided by the Dublin-Rio principles, is implicit in the three associated programmes. IPTRID's research activities are "down stream" in nature, focussed on irrigation and drainage technology and specifically designed to promote investment on modern irrigation and drainage technologies through adaptation and adoption of improved practices. IIMI's research programmes on the other hand, are "up-stream" in nature with focus on irrigation management issues, but covering a relatively wide range of water related subjects. WASAD on the other hand is designed to promote sustainable development and management of water resources in support of food security, within the framework of the IWRM principles, through formulation and implementation of national action programmes.

All the three programmes have been in operation for quite sometime now. They do have their own governance and operational framework. Presently, the programmes collaborate with one another in a rather ad-hoc manner.

(c) A common framework for collaboration under the I&D Window

The common goals and specific objectives of the three associated programmes are clear. There is now on-going consultation among the representatives of the three associated programmes and between then and the GWP secretariat as to how these programmes would contribute to the goals of IWRM, while enhancing their contribution to the common and specific objectives of the associated programmes by generating synergy and mobilizing additional resources. This will be discussed at the forthcoming GWP Consultative and Steering Committee meetings to be held in Marrakesh.

International Atomic Energy Agency (IAEA)

IAEA's activities related to water resources are largely in the area of water resources assessment and the role of isotope techniques including consideration of human impact on water resources, investigation of surface and ground water pollution, and water resources assessment in arid and semi-arid regions. These are important to the planning of potable water supply development, the disposal of wastes and the protection of freshwater resources. The activities are

implemented via Coordinated Research Programmes (CRP) and a programme of Technical Cooperation (TC) projects in Member States through provision of expert services, training and equipment

To date, three actions are being undertaken within the Agency's CRP programme which have a direct relevance to water supply and sanitation and the promotion and protection of human health: the application of isotope techniques to investigate ground water pollution, ground water renewal in water scarce regions, and the use of isotopes for analyses of flow and transport dynamics in ground water systems.

These actions include the identification of pollution sources, determination of levels of pollution, prediction of movement of pollutants and possible control as well as mitigation of contamination, improving the methods to estimate the replenishment rates of ground water resources in the unsaturated zones of selected arid regions of the Middle East, Africa and Latin America to ensure sustained extraction, and the verification of the dynamics of flow and pollutant transport in ground water to provide information for decision-support systems for pollution control management.

Under the TC programme IAEA provides support to the individual countries to strengthen their capacity to apply the various isotope techniques. In Egypt, Ethiopia, Morocco and Senegal the work has focused on the determination of ground water renewal rates, the avoidance of over-exploitation, ensuring sustainable supplies, the distinction between renewable and non-renewable sources, and the overall assessment of ground water resources.

The IAEA, through the Section of Isotope Hydrology has undertaken for the last 30 years practical investigations to solve problems associated with the development and management of water resources. Its programmes include assistance to integrate isotope methodologies to improve the development of water supply, reducing water shortage, improving water quality, protecting water
resources from pollution and over exploitation and/or minimising pollution of water and the aquatic environment.

United Nations Educational, Scientific and Cultural Organization (UNESCO)

The Division of Water Sciences at UNESCO houses the Secretariat of the International Hydrological Programme. The Fifth Phase of the IHP (1996-2001) designated Hydrology and water resources development in a vulnerable environment, addresses several issues directly concerning water resources management and others of relevance to water supply and sanitation.

The formulation of the plan of IHP-V was subjected to a thorough process of consultation in order to appropriately reflect the needs and interests of the Member States (currently 157 countries) and other cooperating partners of the IHP. The major themes of IHP-V all have integrated water management in a vulnerable environment as a common issue, and, by means of specific projects, in numerous instances go beyond the purely scientific aspects to encompass social, cultural, institutional and other factors. The governing council of the IHP has attached highest priority to the themes of 'integrated water resources management in arid and semi-arid zones' and to 'groundwater resources at risk'

Many of the IHP-V activities are applicable contributions to water resources planning and management, including water supply and sanitation operations. Some examples are:

1. Water resources assessment -- IHP-V is expanding to a global scale the application of methods of hydrological analysis using regional data sets by means of the multi-partner 'Flow Regimes from International Experimental and Network Data Sets-FRIEND' project. Another project which considers human-induced effects deals with strategies for water resources assessment and management under conditions of anthropogenic global climate change. Ecohydrological processes are investigated linking with the MAB (Man and the Biosphere) programme of UNESCO.

2. Groundwater resources at risk -- Groundwater is a major source of water supply at rural and urban settings. IHP-V has launched as a high-priority activity the development of approaches for the monitoring and assessment of aquifer

degradation and related processes. One specific project is targeted at groundwater contamination due to urban development.

3. Water resources management -- Several IHP-V themes focus on water management aspects which often have a clear bearing on water supply and sanitation issues. The themes include strategies for water resources management in emergency and conflicting situations; integrated water resources management in arid and semi-arid zones; humid tropics hydrology and water management; and integrated urban water management (see below). It is noteworthy that CATHALAC (Water Centre for the Humid Tropics in Latin America and the Caribbean) was recently established in Panama under the auspices of UNESCO/IHP and the support of the Panamanian Government.

4. Integrated urban water management -- This theme bears particular relevance to the water supply and sanitation aspects. Approaches for urban flood management based on nonstructural measures are being developed; associated activities include the implementation of a Decision Support System for urban flood mitigation using a pilot basin in the Sao Paulo metropolitan area and the organization of an international workshop on non-structural flood control in urban areas (Sao Paulo, April 1998). These efforts also constitute contributions to the International Decade for Natural Disaster Reduction (IDNDR).

Another project is directed to developing modelling approaches of urban drainage in different climates (tropical, arid and semi-arid, and cold) considering the distinct features of each climatic setting. Under the umbrella of the UNESCO-created International Research and Training Centre on Urban Drainage (IRTCUD) based in Belgrade, regional subcentres for different climates are being set up: for tropical climates in Sao Paulo, which is already functioning, and for cold climates in Oslo, conversations are being held for the establishment a Subcentre for arid climate.

A more comprehensive project on surface and ground water management in the urban environment, which encompasses elements of the projects described above is also being carried out: the main thrust is developing approaches integrating all relevant factors, not only hydrological aspects, conducive to sound urban water management, particularly under the conditions of developing countries. Under this project UNESCO/IHP has contributed to the HABITAT II Conference (Istanbul, June 1996) dialogue on 'Thirsty Cities' and is coorganizing with French institutions a symposium on 'Water, the City, and Urban Planning'(Paris, April 1997). Within the framework of the UNESCO transdisciplinary initiative 'Environment and Development in Coastal Regions and Small Islands' (CSI), IHP is collaborating in an urban development and freshwater resources project aimed at the protection of the historical heritage of cities along the Mediterranean coast, which are often threatened by mismanagement of scarce water resources and exposure to coastal processes.

Transfer of KIT (Knowledge, Information and Technology). In addition to formal educational means, public awareness issues related to hydrology are addressed, including the preparation of popularized documents for youth, teachers and the general public; workshops with NGO's and IGO's on policy development and improved techniques of public awareness raising; publication of documentation on water uses; etc. A special program on Women and water resources supply and use with special emphasis on Africa is being implemented. A cooperative basis has been established with various sectors of UNESCO (Social and Human Sciences, Culture, and Education) considering the transdisciplinary nature of the undertaking.

United Nations Industrial Development Organization (UNIDO)

Many of the developing countries are on the path of rapid industrialization and industrial water use is rising. In many developed countries, industrial water use accounts for a significant proportion of all withdrawals. Industrial water use in developed countries is, however, dropping indicating rising water use efficiencies. Although the industrial sector accounts for only 10 per cent to 25 per cent of the aggregate annual water demand in developing countries, water is a critical input for process and cooling requirements in a number of major industries. As documented in case studies from some developing countries, water shortages, unreliable supplies and high prices adversely affect the expansion of small and medium industries resulting in loss of employment opportunities for the poor.

As the United Nations specialized agency responsible for industrial development, UNIDO develops capacity in developing countries to better deal with industrial water. This is approached from a number of different angles, inter alia, by (a) advice to Governments on industrial water policy, including area wide planning, (b) cleaner production demonstrations to show industry how to reduce water use in a cost-effective way, (c) identification of recycling/conservation options, (d) help in monitoring industrial water use and effluent quality, (e) treatment of industrial waste water, (f) industrial process water treatment, (g) advice on setting water quality standards, (h) acting as a central clearing house for information on industrial water use and (I) assistance in the manufacture of water supply and treatment equipment

Examples of how UNIDO projects have assisted factories to improve their use of water are given below.

1 Surface Finishing - mainly electroplating - is one of the most important processes in the production of small metal articles at a factory investigated by UNIDO, and is responsible for most of the pollution generated by the factory. When the construction of a waste water treatment facility to comply with environmental regulations proved to be too costly, the company looked for other cheaper methods to achieve compliance. With the advice of consultants, a number of technological changes were made which resulted in a 56 per cent reduction in waste water flow, and an annual water consumption saving of 8,223m^3. Savings amounted to US$20,078 in the first year for practically no financial investment

2 UNIDO assisted an agro-residue-based paper mill producing unbleached semi-kraft paper and bleached and dyed writing and painting paper. One of the most difficult challenges facing the Mill was the need to conserve water in order to continue production during the summer months, when water is scarce. A team of consultants from UNIDO and a national organization evaluated 65 cleaner production options which, when introduced, achieved savings in water use which have enabled the factory to continue production to full capacity during the summer. Fifteen months after the start of the project, net annual savings amounted to US$182,000 in addition to the financial benefits of producing during the summer months. As a result of the project, the amount of waste water to be treated dropped from 17.8m^3/hour to 7.7m^3/hour. In the follow-up period, a further saving was achieved so that the treatment plant originally priced at $792,000 would now need a capacity of only 4.9m^3/hour and cost US$300,000.

The World Bank

The World Bank policy was in part prompted by operational, environmental, and social problems experienced in the implementation of water resources projects during a period of 30 years. The overall objective of the Bank is to reduce poverty by supporting country efforts to promote social equity, efficiency and sustainability. Fundamental to the policy is recognition of water as an increasingly scarce resource requiring to be managed more effectively through balanced policies and institutional reforms which will harness the efficiency of market forces and strengthen government capacity. At the core of the policy, which is country-focused, is the concept of *"water as an economic good"*, combined with decentralized management and delivery structures, greater reliance on pricing, fuller participation of stakeholders, environmental protection, and adequate consideration of social, environmental and economic issues.

With regard to water supply and sanitation, the need is identified for more efficient and accessible delivery of water services and sewerage collection, sewage treatment and disposal with the ultimate goal of providing universal coverage. The policy advocates that this be achieved through extending existing supplies through water conservation and reuse and by using other sustainable methods. Greater involvement of the private sector, non-governmental organizations and user groups is also called for, as well as cost recovery to ensure financial viability while applying graduated fees/tariffs to assist the poor. Within the framework of these policy elements there are several considerations of particular direct concern for water supply and sanitation: recognition of inadequate water supply as a major cause of disease, emphasis on the need for increased wastewater reuse and pollution reduction, emphasis on crowded low-income areas, water needs of the poor (basic water needs), health benefits of better hygiene, mobilization of communities, and a special focus on the role of women.

World Health Organization (WHO)

The activities of WHO have three fundamental goals: the achievement of a sustainable basis for health for all, provision of a health-promoting environment and the creation of awareness of responsibility for health and its environmental basis. The water supply and sanitation activities of the Organization fall into seven areas: human settlements, basic services, health considerations, water quality, behavioural change, settings supportive of health, and drinking water quality. The programme also has a special focus on Africa, which has the most pressing water supply and sanitation needs while having the lowest levels of sector investment. The programme has been significantly reinforced to respond to disaster and emergencies.

With regard to water supply and sanitation in human settlements the areas addressed are safer disposal of human excreta, hygiene behaviour in communities, schools and individual households, operation and maintenance, environmental and health related to urban sewage disposal, stormwater drainage, urban water resources, the needs of peri-urban areas, cholera and other diarrhoeal diseases control through preventive measures, and monitoring and evaluation. The emphasis on the poor, *"in greatest need", and on* capacity building at community level is at the centre of the strategy based on the rational and optimal use of local facilities and resources. In order to further direct its sanitation programmes to areas of greatest need, WHO is currently is developing a new sanitation strategy aimed at addressing the needs of people at high risk of sanitation-related diseases. This new strategy emphasizes that health is the central concern in sanitation, that vulnerable groups are the target population, and that WHO should promote integrated approaches both within WHO and with other organizations.

Health and environmental aspects of water resources development are promoted through the development of guidelines on the reuse of treated wastes disseminated through regional workshops with special attention being directed towards conservation in water scarce areas. Water resources quality activities focus on the management of resources for urban drinking water supplies while assessment of surface and ground water quality is contained in the GEMS/WATER Programme implemented in collaboration with UNEP, UNESCO, and WMO. Health impact assessments of water pollution are also to be addressed, and data bases are being set up to support water quality management. In support of these initiatives, national laboratory capacity building is being supported. The newly-revised "WHO Drinking-Water Quality Guidelines" is promoted through regional workshops, country consultations and other assistance activities, while surveillance of drinking water, particularly in peri-urban areas, is supported with training and provision of analytical equipment.

The AFRICA 2000 Initiative for Water Supply and Sanitation was requested by ministers of health of 46 sub-Saharan African countries at the forty-third WHO Regional Committee for Africa in September 1993 and the initiative was formally launched at the forty-fourth Regional Committee in September 1994. The main objectives of AFRICA 2000 are to expand water and sanitation services through greater country leadership, increased reliance on African solutions and enhanced partnerships between countries and development agencies. To date, almost all countries have appointed AFRICA 2000 focal points, 15 countries have held AFRICA 2000 national consultations, and AFRICA 2000 activities have been initiated in most of the countries of the Region. WHO provides the secretariat to the Initiative.

In June 1996, the First Regional Consultation of the AFRICA 2000 Initiative was held in Brazzaville. Representatives from 46 African countries plus representatives of UN agencies, bilateral agencies and NGOs attended the meeting. The main outcome of the meeting was the Brazzaville Declaration which called for priorities based on the expressed desires of the people, mobilization of local resources for affordable solutions, new partnerships for health and development, and leadership by African governments, not donor priorities. Planning is now underway for a Second AFRICA 2000 Regional Consultation to be held in Abidjan in June 1997.

World Meteorological Organization (WMO)

WMO concerns centre on the need for the collection of the basic data on the quantity and quality of water which

are required for the effective management of freshwater resources. The tenth session of the WMO Commission for Hydrology, held in December 1996, agreed on plans for work over the next four years, which include such subjects as water use and demand, water quality assessment and the impact of climate variability on water resources. The session of WMO's Executive Council, which was held in June 1997, endorsed these proposals and move long-term plans for the Organization to work more on the subject of sustainable development of urban areas. In parallel with these plans are moves to broaden the international exchange of hydrological data, which has long been a limiting factor in international cooperation in the fields of hydrology and water resources.

Urban development considerably modifies the response to precipitation causing increased run-off with a faster response time, and therefore is significant for sustainable human settlements development. Because of this, WMO with support from a group of collaborators has produced a report in the form of a Technical Note (Rain and Floods in Our Cities - Gauging the Problem) on methods for measuring the hydrological cycle in urban areas. Surface water in urban areas impacts on urban ground water which is often the source of water supply for the community. This document was an input to HABITAT II.

The manual "Water Resources Assessment-Handbook for Review of National Capabilities" has been revised in collaboration with UNESCO to provide support to countries for reviewing levels of activity in their basic water resources programmes. It includes guidance on density of installations, computerization, skilled personnel requirements, management structure, education and training, and research and development.

In recognition of the special needs of Africa, the African Conference on Water Resources: Policy and Assessment, Addis Ababa, March 1995 was convened. It agreed on an "African Water Resources Assessment Programme - Policy, Strategy and Action Plan" which has the long term objective to "rehabilitate, build and/or adapt the institutional, financial, manpower and technological capacity of the relevant services of the countries and regional bodies concerned, so as to enable them to assess national water resources on a sustained and continuous basis for their development, management and protection." The "Strategy and Action Plan" was formally adopted by African governments and has been incorporated in the UN System-wide Special Initiative on Africa. Strengthening of water resources assessment capacity and reliable water resources assessment are important for the planning and development of water supply and sanitation systems.

Water resources assessment and management strategies in Latin America and the Caribbean was the subject of a regional conference organized by WMO in collaboration with IDB and held in San Jose, Costa Rica, in May 1996. The Conference agreed on an Action Plan covering the areas of integrated water resources management, institutional and legal framework, comprehensive water resources assessment, basic information for integrated management of water resources, human resources and training, education and community participation, natural disasters, transboundary water resources, role of international organizations, regional recommendations and follow-up to the actions plan.

In the area of disaster prevention and relief, WMO collaborates actively in all aspects of the International Decade for Natural Disaster Reduction and has a programme for the provision of meteorological and hydrological advice to relevant entities of the UN system in the case of complex emergencies. Often such emergencies cause disruption to water supply services and endanger sources of water for potable supply through increased pollution and short-circuiting. The Organization is involved in a number of the events planned for the end of the Decade, in particular as regards the operational aspects of disaster prevention and in support of moves to ensure that the momentum and cooperation development of the past years continues after 1999.